REMARKS

Claims 1 and 3-20 are pending in this application. By this Amendment, Applicant amends claims 1 and 14, and cancels claim 2.

Claims 1-13 were rejected under 35 U.S.C. § 112, second paragraph for the informality contained therein. Claim 1 has been amended to recite "a method for manufacturing and screening a piezoelectric transformer apparatus. . ." This amendment to claim 1 clearly sets forth the scope of the claim. Accordingly, Applicant respectfully requests reconsideration and withdrawal of the rejection under 35 U.S.C. § 112, second paragraph.

Claims 1, 2, 6, 7, 10 and 12 were rejected under 35 U.S.C. Section 102(b) as being anticipated by the IEEE publication to Kawamura et al. And, claims 1-20 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Clawson et al. (U.S. 3,610,969) in view of Holroyd et al. (U.S. 5,004,985). Applicant respectfully traverses these rejections.

Claim 1 has been amended to recite:

> "A method for manufacturing and screening a piezoelectric transformer apparatus including an actuator and a generator, the method comprising the steps of:
>
> beginning manufacturing of the piezoelectric transformer apparatus;
>
> connecting a load impedance to said generator;
>
> applying a stress signal to said actuator to vibrate the piezoelectric transformer apparatus;
>
> identifying whether the transformer apparatus has a mechanical latent defect; and
>
> completing the manufacture of the piezoelectric transformer apparatus after the step of identifying whether the transformer apparatus has a mechanical latent defect."

Claim 14 recites similar method steps for manufacturing a piezoelectric transformer apparatus.

Mechanical latent defects leading to failure of piezoelectric transformer apparatuses are contained within the piezoelectric plate. Thus, identification of a defective apparatus cannot be performed by external observation. In conventional

methods of manufacturing piezoelectric transformer apparatuses it has been impossible to quickly inspect the strength of the piezoelectric transformer apparatus and identify and eliminate defective apparatuses having latent defects. Further, in conventional manufacturing processes, inspection of the strength of the apparatus must be performed within a period of time of just a few seconds which has not previously been possible with the conventional manufacturing methods. Thus, many defective piezoelectric transformer apparatuses are produced using the conventional manufacturing methods.

The present invention overcomes the above-described problems with the conventional manufacturing methods by providing a method of manufacturing and screening a piezoelectric transformer apparatus that includes connecting a load impedance to said generator, applying a stress signal to said actuator to vibrate the piezoelectric transformer apparatus, and identifying whether the transformer apparatus has a defect in the process of manufacturing the piezoelectric transformer apparatus.

In contrast, Kawamura merely teaches a high voltage sensor using a piezoelectric transducer and a strain gage. Kawamura fails to teach or suggest any method of manufacturing a piezoelectric transformer apparatus, let alone the unique combination and sequence of method steps recited in claim 1 including "beginning manufacturing of the piezoelectric transformer apparatus, connecting a load impedance to said generator, applying a stress signal to said actuator to vibrate the piezoelectric transformer apparatus, and identifying whether the transformer apparatus has a defect and completing the manufacture of the piezoelectric transformer apparatus after the step of identifying whether the transformer apparatus has a defect". Specifically, Kawamura does not teach any testing of a transformer apparatus or identifying defective transformer apparatuses during the manufacture of the transformer apparatus. Accordingly, Applicants respectfully submit that Kawamura et al. fails to teach or suggest the invention recited in claim 1.

Further, the Examiner alleges that Kawamura teaches "connecting a load impedance to a generator (see Figures 5 and 3)". However, there is absolutely no disclosure of a load impedance being connected to the generator illustrated in Figures 5

and 3. Therefore, contrary to the Examiner's allegation that Kawamura teaches "connecting a load impedance to a generator", Kawamura fails to explicitly teach or suggest this feature of the invention recited in claim 1 of the present application.

The Examiner alleges that Clawson teaches the steps of "beginning manufacturing by providing several piezoelectric plates 2, 3; connecting a load impedance to a generator (diagrams of Figures 5-7); applying a continuous sinusoidal stress signal to the actuator to vibrate the transformer (see Fig. 8); and cooling the transformer back to normal atmospheric conditions after the piezoelectric plates have been fired." Applicant strongly disagrees.

Neither the step of "connecting a load impedance", nor "applying a continuous sinusoidal stress signal" are steps which are performed during manufacturing the piezoelectric transformer in Clawson. In fact, Clawson fails to teach or suggest any method of manufacturing a piezoelectric transformer. Figs. 5-7 of Clawson, referred to by the Examiner, are merely diagrams of the piezoelectric transformer illustrating various ways of electrically connecting the piezoelectric transformer, and have nothing to do with a method of manufacturing a piezoelectric transformer (see col. 3, line 66 through col. 4, line 10). Further, Fig. 8 of Clawson is merely a graphic representation which shows a typical input impedance, with an open output circuit, versus frequency for body 2 and body 3 of the device embodiment of Fig. 1, and, similar to Figs. 5-7, is not related to the manufacture of the piezoelectric apparatus (see col. 4, lines 11-17).

Therefore, Applicant respectfully submits that Clawson fails to teach or suggest the unique combination and sequence of method steps recited in claims 1 and 14.

Holroyd is relied upon to teach testing a piezoelectric transformer to identify latent defects. However, Holroyd teaches a method to identify defects of operability and satisfactory functioning of the transformer. Holroyd teaches a method to determine whether the piezoelectric sensor and the amplifier are functioning satisfactorily (see Abstract), and does NOT teach or suggest a method including the steps of "identifying whether the transformer apparatus has a mechanical latent defect" and "completing the manufacture of the piezoelectric transformer apparatus after the step of identifying whether the transformer apparatus has a mechanical latent defect". Further, Holroyd

fails to teach or suggest any method of manufacturing a piezoelectric transformer apparatus, let alone the unique combination and sequence of method steps recited in claims 1 and 14 of the present application. Accordingly, Applicant respectfully submits that Holroyd fails to cure the defects of Clawson.

Therefore, Applicant respectfully submits that Clawson and Holroyd, taken individually or in combination, fails to teach or suggest the unique combination and arrangement of method steps recited in claims 1 and 14 of the present application.

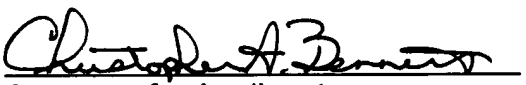
In view of the foregoing Amendments and Remarks, Applicant respectfully submits that Claims 1 and 14 are allowable over the prior art for the reasons described above. Claims 3-13 and 15-20 are dependent upon claims 1 and 14, respectively, and are therefore allowable for at least the reasons that claims 1 and 14 are allowable.

In view of the foregoing Amendments and Remarks, Applicant respectfully submits that this Application is in condition for allowance. Favorable consideration and prompt allowance are respectfully solicited.

The Commissioner is authorized to charge any shortage in fees due in connection with the filing of this paper, including extension of time fees, to Deposit Account No. 50-1353.

Respectfully submitted,

Date: August 29, 2001



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VERSION WITH MARKINGS TO SHOW CHANGES MADE

1. A method for manufacturing and screening a piezoelectric transformer apparatus including an actuator and a generator, the method comprising the steps of:

beginning manufacturing of the piezoelectric transformer apparatus;

connecting a load impedance to said generator;

applying a stress signal to said actuator to vibrate the piezoelectric transformer apparatus; [and]

identifying whether the transformer apparatus has a mechanical latent defect; and

completing the manufacture of the piezoelectric transformer apparatus after the step of identifying whether the transformer apparatus has a mechanical latent defect.

14. A method of manufacturing a piezoelectric transformer apparatus including an actuator and a generator, the method comprising the steps of:

beginning manufacturing of the piezoelectric transformer apparatus;

testing the piezoelectric apparatus for mechanical latent defects; and

completing manufacturing of the piezoelectric transformer.